

10.4 HW Key p550 27-41 odd 45

27. $6^x \geq 42$

$$x \log 6 \geq \log 42$$

$$x \geq \frac{\log 42}{\log 6}$$

$$x \geq 2.0860$$

29. $8^{2a} < 124$

$$2a \log 8 < \log 124$$

$$a < \frac{\log 124}{2 \log(8)}$$

$$a < 1.1590$$

31. $3^{n+2} = 14.5$

$$(n+2) \log 3 = \log 14.5$$

$$n+2 = \frac{\log 14.5}{\log 3}$$

$$n = \frac{\log 14.5}{\log 3} - 2$$

$$n = .4341$$

33. $8.2^{n-3} = 42.5$

$$(n-3) \log 8.2 = \log 42.5$$

$$n-3 = \frac{\log 42.5}{\log 8.2}$$

$$n = 4.7820$$

35. $20^{x^2} = 70$

$$x^2 \log 20 = \log 70$$

$$x^2 = \frac{\log 70}{\log 20}$$

$$x^2 = 1.4182$$

$$x = \pm 1.1909$$

37. $8^{2n} > 52^{4n+3}$

$$\frac{2n \log 8}{\log 52} > \frac{(4n+3) \log 52}{\log 52}$$

$$1.0526n > 4n+3$$

$$-2.9474n > 3$$

$$n < -1.0178$$

$$39. \quad 16^{d-4} = 3^{2-d}$$

$$(d-4) \log 16 = (3-d) \log 3$$

$$(d-4) 2.5237 = 3-d$$

$$2.5237d - 10.0949 = 3-d$$

$$3.5237d = 13.0949$$

$$d = 3.7162$$

$$41. \quad 5^{5y-2} = 2^{2y+1}$$

$$(5y-2) \log 5 = (2y+1) \log 2$$

$$(5y-2) 2.3219 = 2y+1$$

$$11.6096y - 4.6438 = 2y+1$$

$$9.6096y = 5.6438$$

$$y = .5873$$

$$45. \quad \log_2 13 = \frac{\log 13}{\log 2} \approx 3.7004$$